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10/615,808	07/09/2003	Wayne L. Bilodeau	AVERP3299USA	1464

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EXAMINER

DESAI, ANISH P

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,808

Applicant(s)

BILODEAU, WAYNE L.

Examiner

Anish Desai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 38-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37, 42 and 43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/14/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: Pressure Sensitive Adhesive Technology by Benedek et al., Marcel Dekker Inc., New York, 1997, Pages 268-269..

DETAILED ACTION

Election/Restriction

1. Applicant's remarks/arguments received on 05/16/05 in response to the office action regarding election/restriction requirement mailed on 05/06/05 are found not to be persuasive. The examiner has nothing more to add but what has been previously said in the aforementioned office action. The restriction is made FINAL.
2. The applicant's response received on 08/04/05 in response to the office action regarding species election/restriction requirement mailed on 07/06/05 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 34-36 recite limitation "amine", "alcohol" and "carboxylic acid" respectively. There is insufficient antecedent basis for this limitation in the claim. It seems that claims 34-36 should depend on the claim 32. For the purpose of the examination, examiner is interpreting claims 32-36 to be dependent on the claim 32.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 12-13, 17-23, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.).

5. Arnold teaches a decal/label. According to Arnold, there are many applications for a high strength, well protected, strongly adherent label. Such labels are traditionally made by printing inks onto a self-adhesive base film and then overlaminating the printed matter with a further layer of clear film to cover and protect the printed inks from abrasion and weathering (Column 1, lines 10-16). Traditional materials for the base film or substrate are vinyl or polyester (Column 1, lines 18-19). In Figure 1, Arnold discloses a decal formed by an assembly of laminations. In Figure 1 of Arnold, ink layers are printed on to a vinyl film 14 and an adhesive layer 16 is shown on the other side (i.e. side away from the ink layers). Additionally, in Figure 1, a protective film is overlying on the ink layers (Column 3, lines 68, Column 4, lines 1-5). The examiner is equating, the vinyl film as the facestock as claimed in the claim 1, printed ink layer as print layer as claimed in the claim 11, and protective film as the transparent protective layer as claimed in the claim 12. With respect to claim 13, Arnold seems to teach a protective sheet of Kraft glassine coated with polysiloxane polymer (Column 7, lines 40-43).

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6. With respect to claim 7, recall the Arnold teaches that the traditional materials for the base film or substrate are vinyl or polyester (Column 1, lines 18-20

7. Arnold is silent with respect to teaching a two-part high solids curable adhesive as claimed in claim 1, adhesive cures without the application of external energy as claimed in claim 2, adhesive further comprises a tackifier or plasticizer as claimed in claim 3, tack of adhesive as claimed in claim 4, viscosity as claimed in claim 5, coat weight as claimed in claim 6, adhesive comprising epoxy resin and a primary amine, a carboxylic acid or carboxylic anhydride or a mixture of two or more thereof as claimed in claim 17 and 37, two part curable adhesive as claimed in claim 18, epoxy curing agent as claimed in claim 19, reactive diluent as claimed in claim 20, cyclic anhydride and primary amine as claimed in claim 21, cyclic anhydride as claimed in claim 22, and primary amine as claimed in claim 23. Thus one would have to look elsewhere for a suitable adhesive.

8. Petrie teaches that epoxy adhesives are most versatile family of adhesive because they bond very well to many substrates and can be easily modified to achieve widely varying properties (see Page 355). Additionally, epoxy resins have good wetting characteristics (Page 356). Epoxy adhesives offer excellent resistant to oil, moisture, and many solvents (Page 356). According to Petrie, commercial epoxy adhesives are composed primarily of an epoxy resin and a curing agent (Page 356), which meets the claim limitation of claim 1. The curing agent can be amines (Page 361) and anhydrides (Page 361), which meets the claim limitation of claims 17 and 37. With respect to claim 2, epoxy resin can be cured at room temperature using curing agent such as amine

(Page 361). With respect to claims 3 and 4, it is known to add plasticizers and tackifiers into adhesive formulations (see Page 320).

9. With respect to claim 5, although Petrie is silent with respect to teaching the claimed viscosity but Petrie teaches that the epoxy resins include secondary ingredients such as reactive diluent to adjust viscosity. Thus, a skilled artisan can use any known reactive diluent and adjust the viscosity of the epoxy resin in the desire range such that it can be easily processed. With respect to claim 6, Petrie teaches the claimed invention except the coat weight as claimed. Coat weight is considered as a result effective variable. As the coat weight of an adhesive increases, the tack of the adhesive also increases. Thus, a skilled artisan would have found it obvious to choose the coat weight of the epoxy adhesive as claimed, since the discovering of an optimum value of result effective variable involves only routine skill in the art.

10. With respect to claim 18, Petrie teaches epoxy formulations using diglycidyl ether of bisphenol A (DGEBA) (Page 360) and epoxy resins modified with rubbers (Page 367) which meets the claim limitations of claim 18. Recall that Petrie teaches various curing agents such as amines and anhydrides (Page 361), which meets the claim limitations of claims 18, 19, and 21. Note that anhydride has a cyclic molecular structure.

11. With respect to claim 20, recall that Petrie teaches reactive diluent to adjust the viscosity of epoxy resins (Page 360).

12. With respect to claims 23 and 43, Petrie teaches metaphenylenediamine and methylene dianiline (Table 10.8).

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13. Thus, a skilled artisan would have found it obvious to use epoxy adhesive of Petrie with curing agents such as anhydride and amines, with tackifiers or plasticizers, viscosity from about 30,000 cps to about 120,000 cps, coat weight from about 5 to 30 grams per square meter in the invention of Arnold as an adhesive for decal/label, motivated by the desire to provide strongly adherent decal/label using the epoxy resins that offers high degree of adhesion and good wetting characteristics as taught by Petrie.

14. Claims 8 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.) and further in view of Istvan et al. (*Pressure Sensitive Adhesive Technology*, Marcel Dekker Inc., 1997, Page 268-269).

15. The invention of Arnold and the disclosure of Petrie are previously disclosed. Both are silent with respect to teaching claimed polypropylene and polyethylene terephthalate (PET). According to Istvan et al., it is known in the art to use oriented polypropylene and PET films as a facestock materials for labels (Page 269). Thus, a skilled artisan would have found it obvious to use oriented polypropylene or PET film of Istvan et al. coated with epoxy adhesive containing amine curing agent of Petrie in the invention of Arnold as a facestock, motivated by the desire to use known facestock materials as taught by Istvan et al.

16. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.) and further in view of Ogata et al. (US Patent 3,909,480).

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17. The invention of Arnold and the disclosure of Petrie are previously disclosed.

Both are silent with respect to claimed cyclic anhydride.

18. Ogata et al. teach an epoxy resin composition useful in casting, molding, laminating, impregnating, adhering, and coating (Column 7, lines 40—43). Additionally, at column 5, line 45 and line 56, Ogata et al. seem to teach that the epoxy resin with anhydride curing agent such as pyromellitic dianhydride is known.

19. Thus a skilled artisan would have found it obvious to use epoxy resin with anhydride curing agent of Ogata et al. as an adhesive in the invention of Arnold, motivated by the desire to provide a strongly adherent decal.

20. Claims 9, 10, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.) and further in view of Kittel et al. (US Patent 6,228,486 B1).

21. The invention of Arnold and disclosure of Petrie are previously described. Both are silent with respect to teaching corona treatment as claimed in claim 9, barrier or tie coating layer as claimed in claim 10, abrasion resistant layer as claimed in claim 14, and adhesion promoting layer as claimed in claim 15.

22. Kittel et al. teach laminates useful in providing labels and decals (Column 1, lines 1-5). The laminate of Kittel et al. comprises a facestock comprising a first layer having an upper surface and a lower surface, a heat-activable adhesive layer underlying the lower surface of said first layer; an adhesion promoting layer overlying the upper surface of said first layer (i.e. the facestock) and abrasion resistant transparent coating layer overlying said adhesion promoting layer. In one embodiment, an ink or graphics

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layer is positioned between the adhesion promoting layer and the abrasion resistant transparent coating layer (Column 1, lines 50-60). Thus, the abrasion resistant layer of Kittel et al. can serve to protect the underlying ink or graphic layer.

23. With respect to claim 14, a skilled artisan would have found it obvious to overlay the abrasion resistant transparent coating of Kittel et al. on the printed ink layers of Arnold, motivated by the desire to protect the printed ink layers from abrasion.

24. With respect to claim 15, a skilled artisan would have found it obvious incorporate the adhesion promoting layer of Kittel et al. between the facestock and printed ink layers of Arnold, motivated by the desire to improve the adhesion between the printed ink layers and the facestock of Arnold.

25. With respect to claim 9, in addition to previously disclosed matters of Kittel et al., in one embodiment Kittel et al. teach that upper surface 114 of a first layer 112 is corona treated to raise the surface energy which allows for enhance printing (Column 2, lines 66-67, Column 3, lines 1-8). Note that the first layer 112 is a part of the facestock (Column 2, line 25). Thus a skilled artisan would have found it obvious to treat the facestock 14 of Arnold with a corona treatment of Kittel et al. in order for enhanced printing of ink layers 15 on the facestock of Arnold as taught by Kittel et al.

26. With respect to claim 10, in addition to previously disclosed matters of Kittel et al., a tie layer can be positioned between the film layers 112 and 118. Note that film layer 112 is the face stock (Column 2, line 26) and the layer 118 is an adhesive layer (Column 2, line 28) in the invention of Kittel et al. Thus, a skilled artisan would have found it obvious to use a tie layer of Kittel et al. and placed it between the facestock 14

and the adhesive 16 of Arnold, motivated by the desire to enhance the bonding between the facestock and the adhesive layer.

27. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.) and further in view of Gager et al. (US Patent 5,215,814).

28. The invention of Arnold and the disclosure of Petrie are previously disclosed. Both are silent with respect to teaching a layer of ink receptive composition as claimed.

29. Gager et al. teach a fast drying printing film composite for use in offset lithography and similar printing applications comprising an ink receptive layer on one side of a substrate (Abstract). The plastic films of Gager et al. offer opportunities for use in applications such as labels (Column 1, lines 34-44). The ink receptive layer of Gager accept most conventional printing inks and shortens the holding period before further handling usually to within thirty minutes or less of ink application without the need for any special drying equipment (Column 1, lines 45-52).

30. With respect to claim 16, a skilled artisan would have found it obvious to incorporate the ink receptive layer of Gager et al. between the facestock 14 and the ink layers 15 in the invention of Arnold, motivated by the desire to print the facestock using any conventional printing inks and without the need for using any special drying equipment to dry the inks as taught by Gager et al.

31. Claims 24-27, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.) and further in view of Sakamoto et al. (US Patent 4,829,134).

32. The invention of Arnold and the teachings of Petrie, E.M. are previously disclosed. Both are silent with respect to teaching oxazoline as claimed in claims 24,25, and 42 and anhydride as claimed in claim 26.

33. Sakamoto et al. teach epoxy resin composition having excellent tenacity or toughness. According to Sakamoto et al., when an oxazoline compound is mixed with epoxy resin and the resultant mixture is cured, epoxy resin having excellent tenacity can be prepared (Column 1, lines 30-35). Sakamoto et al. disclose curing agents such as amine and acid anhydride (Column 2, lines 48-51).

34. With respect to claims 25 and 42, although Sakamoto et al. do not explicitly teach the claimed oxazolines but according to Sakamot et al. the oxazoline compound mixed with the epoxy resin is compound having at least one oxazoline ring in the molecule and is not limited to specific compound (Column 1, lines 61-63). Thus, a skilled artisan can use any oxazoline compound, which contains at least one oxazoline ring.

35. With respect to claim 26, Sakamoto et al. teach a curing agent such as pyromellitic anhydrides and phthalic anhydrides (Column 3, line 7). With respect to claim 27, recall that Petrie teaches metaphenylenediamine and methylene dianiline (Table 10.8).

36. Thus, a skilled artisan would have found it obvious to use oxazoline compound of Sakamoto et al. with anhydride curing agent in the epoxy adhesive of Petrie E.M. and applied it to the facestock of Arnold, motivated by the desire to have an adhesive that is excellent in mechanical strength (i.e. tenacity) as taught by Sakamoto et al.

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37. Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of (Handbook of Adhesives and Sealants by Petrie, E.M.) and further in view of Corley (US Patent 5,169,910).

38. The inventions of Arnold and the disclosure of Petrie are previously disclosed. Both are silent with respect to teaching carbodiimide and carboxylic acid as claimed.

39. Corley teaches a composition comprising a curable epoxy resin, a reactive diluent, a curing agent for epoxy resin, and an isocyanate compound (Abstract). The composition is stable at room temperature for extended periods of time (Abstract). The epoxy resin composition of Corley can be pre-mixed and stored but cures rapidly under subsequently imposed cure conditions (Column 1, lines 7-8).

40. With respect to claim 28, the reactive monomer contains esters or amides of ethylenically unsaturated carboxylic acids (Column 2, line 60). With respect to claim 31, although Corley does not explicitly teach the claimed formula, it is reasonable to presume that the carboxylic acid used in the reactive monomer does have the claimed formula. The isocyanate compound is modified with the carbodiimide linkage to make it liquid at room temperature (Column 4, line 65). Thus the carbodiimide linkage will have the claimed structural formula as claimed in the claim 29. With respect to claims 30, recall that Petrie teaches metaphenylenediamine and methylene dianiline (Table 10.8).

41. Thus a skilled artisan would have found it obvious to use the epoxy composition of Corley containing isocyanate modified with carbodiimide linkage in the invention of

Arnold as an adhesive that is stable at room temperature but will cure rapidly at desired curing conditions as taught by Corley.

42. Claims 1 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold (US Patent 4,517,044) in view of Farah et al. (US Patent 3,872,049).

43. The invention of Arnold is previously disclosed. Arnold is silent with respect to teaching two parts curable adhesive as claimed in the claim 1, isocyanate as claimed in claims 32 and 33, primary amine as claimed in claims 32 and 34, alcohol as claimed in claim 32 and 35, and carboxylic acid as claimed in claim 32 and 36.

44. Farah et al. teach a method for producing finely divided solid urea-urethane polymers. According to Farah et al., urea-urethane have found widespread use in coatings due to their advantageous properties such as their ability to rapidly cure, chemical resistance, abrasion resistance, toughness, elasticity and durability (Column 1, lines 18-22).

45. The urethane prepolymer is derived from hydroxyl-terminated polyester polyol, and diisocyanate, with diamine in an aromatic hydrocarbon reaction medium (Column 2, lines 8-10). According to Farah et al., variety of polyols can be reacted with dicarboxylic acids to produce the hydroxyl terminated polyester polyols (Column 3, lines 52-54). The dicarboxylic acid is considered to be a precursor to the polyester polyol. Thus, with respect to claim 36, although Farah et al. do not explicitly teach the claimed formula of dicarboxylic acid, it is reasonable to presume that the dicarboxylic acid of Farah et al. would necessarily have the claimed formula containing two carboxylic groups (i.e. –

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COOH). With respect to claim 33, the diisocyanate used in the invention of Farah et al. are for example hexamethylene diisocyanate (Column 2, line 64), which necessarily has the claimed formula. With respect to claim 34, the preferred diamines of Farah et al. have aliphatic or aromatic diamines (Column 5, lines 44-45). The useful amines are for example ethylene diamine (Column 5, line 59), which inherently has molecular weight of about 60. With respect to claim 35, Farah et al. teach low molecular weight of polyester polyol is about 400 (Column 3, lines 41-42).

46. Thus a skilled artisan would have found it obvious to use urea-urethane coating of Farah et al. in the invention of Arnold as an adhesive, motivated by the desire to use adhesive that has excellent abrasion resistance and durability as taught by Farah et al.

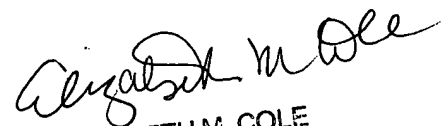
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anish Desai whose telephone number is 571-272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

APD


ELIZABETH M. COLE
PRIMARY EXAMINER